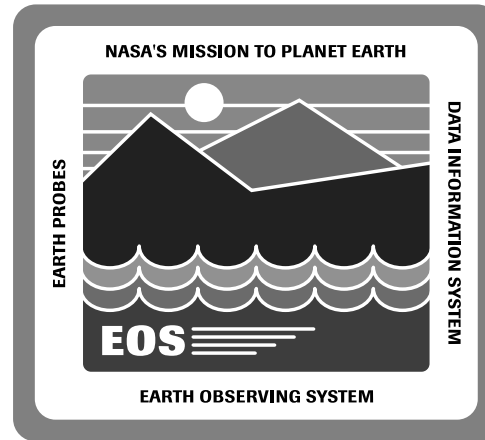


## **Appendix B. SDPS PDR IAS Summary Charts**



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# **Independent Architecture Studies PDR Relevant Issues**

## **Mark Elkington**

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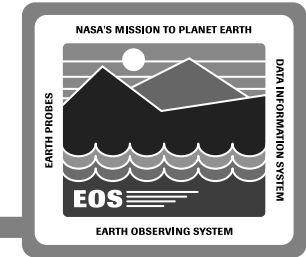
**13 February 1995**

# Presentation Roadmap



- ☐ **System/Segment Context**
- ☐ **Subsystem Functional Overview**
- ☐ **Subsystem CI Overview**
- ☐ **Hardware Overview**
- ☐ **Release IR-1, and A Objectives**
- ☐ **Key Design Changes Since SDR**
- ☐ **CSMS Service Utilization - [*Richard Meyer*]**
- ☐ **End-to-End High Level Scenarios - [*Ron Williamson*]**
- ☐ **Independent Architecture Studies - PDR Relevant Issues**

# Independent Architecture Studies Review



## Three independent study teams led by UCB, GMU, UND

- many good ideas - tended to focus on the areas of team strength rather than the whole system
- independence from ECS resulted in significant overlap with current design
- several programmatic issues raised [ e.g.processing focus, DAACs responsibility and structure, user community scope]

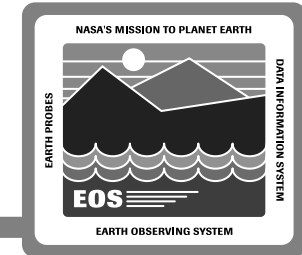
## 100 recommendations accepted by the review panel and categorised as:

- ECS already included in ECS design
- PRG programmatic assessment as it implies major change to scope of EOSDIS
- PDR considered in the PDR timeframe
- EVO considered as evolutionary development for incorporation post Release B
- R&D potentially interesting for EOSDIS but requires more community R&D before assessment can be made

## PDR Recommendations

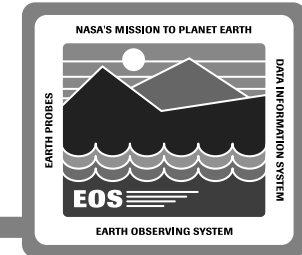
- discuss activity, progress and pointers to more discussion later in the PDR

# IAS PDR Relevant Issues



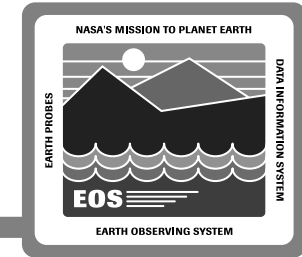
ISSUE	ECS APPROACH	CURRENT STATUS
<b>Routine vs. On-demand Production</b>		
<ul style="list-style-type: none"> <li>• Support “Eager” and “Lazy” Evaluation</li> <li>• Do Not Preclude Paradigm Shift to “Compute On Demand”</li> <li>• Regularly Cycle Through Archive (“Back-end Filtering”)</li> </ul>	<ul style="list-style-type: none"> <li>• Standard and Ad-hoc Production Requests Will Use Common Interface</li> <li>• Data Server Will Support Requests for “Virtual” Data</li> <li>• Data Server Will Support “User Methods”</li> <li>• Cycling Through Archive Has Commonality With Re-processing</li> <li>• Data Server Architecture Allows Future Evolution to “Back-end Filtering” As An Optimization Issue</li> </ul>	PARTIALLY ADOPTED BY ECS: <ul style="list-style-type: none"> <li>• IAS Concerns Addressed As Evolutionary Features (Examples Presented At This PDR)</li> <li>• Release A Preserves Evolutionary Options</li> <li>• AHWGC Interaction Required to scope and prioritize “Queries from Hell” Issue</li> <li>• Content Based Searching Is Not In Current Requirements Baseline</li> </ul>
<b>Support For Pull Diversity and Scalability</b>		
<ul style="list-style-type: none"> <li>• Need to Support Pull (Within Cost Constraints)</li> <li>• Support Third-Party Providers (Scuhas PARCs, Peer DAACs, etc)</li> </ul>	<ul style="list-style-type: none"> <li>• ECS Is Based on An Open, Service Oriented Architecture</li> <li>• Incremental Development of Pull Components To Allow For Input From Community</li> </ul>	ALREADY ADOPTED BY ECS: <ul style="list-style-type: none"> <li>• ECS Will Issue A Third Party Provider IDD</li> <li>• AHWGC Interaction Required to Quantify and Prioritize Pull Issues</li> </ul>

# IAS PDR Relevant Issues



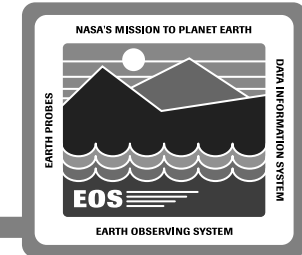
ISSUE	ECS APPROACH	CURRENT STATUS
<ul style="list-style-type: none"> <li>• ECS Should Adopt SQL/2</li> <li>• ECS Should Adopt SQL-*</li> <li>• Migrate to SQL/3</li> <li>• Use Standard Off-the-shelf Indexed Access Methods</li> <li>• Influence COTS Vendors To Provide Distributed Query Middleware</li> </ul>	<p><b>ECS Data Access Protocols</b></p> <ul style="list-style-type: none"> <li>• ECS Will Use Off-the-Shelf Indexing Technologies</li> <li>• Data Server Architecture Encapsulates Vendor Specifics (Query Language, DBMS Architecture)</li> <li>• ECS Intends to Migrate to SQL/3</li> </ul>	<p>PARTIALLY ADOPTED BY ECS:</p> <ul style="list-style-type: none"> <li>• Query Language Decisions Still Pending - SQL/3 Currently Too Vague - Release A Will Support ODL</li> <li>• Vendor Negotiations Are In Progress, However, ECS Will Not Accept Middleware Based On Proprietary Query Language</li> </ul>
<ul style="list-style-type: none"> <li>• ECS Should Incrementally Develop Earth Science Type Library, Query Schema, Data Dictionary</li> <li>• ECS Should Verify Design Using Science User Scenarios and Other Types of User Scenarios</li> </ul>	<p><b>ECS Data Management Design</b></p> <ul style="list-style-type: none"> <li>• Data Management and Data Dictionary Subsystems Are Being Developed Incrementally</li> <li>• ECS Design Makes Extensive Use of User Scenarios</li> </ul>	<p>ALREADY ADOPTED BY ECS</p> <ul style="list-style-type: none"> <li>• AHWGC Could Provide Useful Input on Scenario Mix and Priority</li> </ul>

# IAS PDR Relevant Issues



ISSUE	ECS APPROACH	CURRENT STATUS
	<b>Miscellaneous Issues</b>	
<ul style="list-style-type: none"> <li>Just In Time Hardware Acquisition</li> </ul>	<ul style="list-style-type: none"> <li>ECS Will Defer Hardware Acquisitions As Long As Is Possible Within Government Procurement Rules</li> </ul>	ALREADY ADOPTED BY ECS
<ul style="list-style-type: none"> <li>Replace User Help Staff With On-Line Help / WWW Capabilities</li> </ul>	<ul style="list-style-type: none"> <li>ECS Will Implement An Extensive Web Of Help Information (e.g., Dictionary, Access to Various Levels of Guide Documentation, User Help Information)</li> </ul>	INFORMATION WEB APPROACH ALREADY ADOPTED, <b>BUT:</b> <ul style="list-style-type: none"> <li>ECS Does Not Believe That User Help Staff Should Be Eliminated</li> </ul>
<ul style="list-style-type: none"> <li>ECS Should Use NFS rather than RPC for Bulk Data Transfer</li> <li>ECS Should Use "Virtual Client Protocol" To Reduce Network Traffic</li> </ul>	<ul style="list-style-type: none"> <li>ECS Will Use File Transfer and Distributed File System Protocols for Bulk Data Transfer</li> <li>ECS Design Employs "Virtual Client"-type Protocol</li> </ul>	ALREADY ADOPTED BY ECS

# IAS PDR Relevant Issues



ISSUE	ECS APPROACH	CURRENT STATUS
<ul style="list-style-type: none"> <li>ECS Should Not Use CORBA Now</li> <li>ECS Should Use SNMP</li> <li>ECS Should Support TCP/IP based protocols, including SLIP</li> <li>ECS Should Evolve To ATM, and Be Involved In ATM Field Trials</li> <li>Influence Standards</li> </ul>	<p><b>Network Protocols</b></p> <ul style="list-style-type: none"> <li>ECS Will Not Use CORBA Until Release C</li> <li>ECS Is Using SNMP</li> <li>TCP/IP, SLIP is a non-issue when Dial-Up Support Added at B</li> <li>ECS Is Prepared For A Likely Move to ATM, and Is Involved With ATM Testbeds</li> <li>ECS Is Involved In Standards Activities</li> </ul>	<p>ALREADY ADOPTED BY ECS:</p>
<ul style="list-style-type: none"> <li>ECS Should Assess Network and Technology Trends</li> <li>BONeS Simulation of Alternatives to the V0 Inter-DAAC topologies presented by the IAS should be checked</li> </ul>	<p><b>Miscellaneous CSMS Issues</b></p> <ul style="list-style-type: none"> <li>This is An Ongoing Activity Within The CSMS Development Organization</li> <li>InterDAAC Networks Are Not ECS Provided</li> </ul>	<p>ALREADY ADOPTED BY ECS</p> <ul style="list-style-type: none"> <li>ECS Modelling of Inter-DAAC traffic will feed ESDIS modelling and procurement activity</li> </ul>